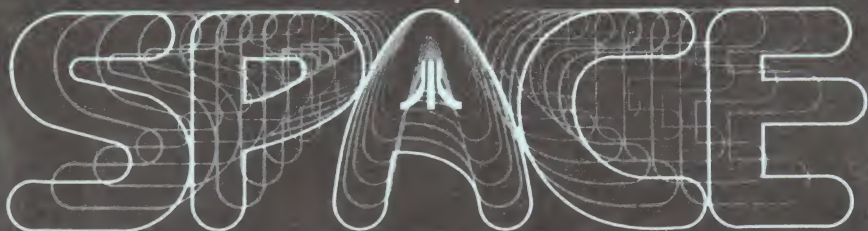


**NOVEMBER • 1988**

Saint Paul ATARI Computer Enthusiasts



An independent computer user group

**SPACE Meeting** Friday, Nov. 11th at 7:30pm

**MAST Meeting** Friday, Nov. 18th at 7:30pm

At the Falcon Heights Community Center  
2077 Larpenteur Avenue West

**MAST+ Programmers Meeting**

Monday, Nov. 21st at 7:30pm

At First Minnesota Bank Building - second floor  
Lexington and Larpenteur, in back of building



Minnesota  
Atari ST

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Sysop: Bruce Haug (Home Phone: 774-6226)

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S • P • A • C • E

**BYTES from the  
SPACE PRES**

by Larry Vanden Plas

Since my term as your president ends in November, this is my last BYTES column. I would like to talk about what we have accomplished during the last year, thank you for your support, share some Atari news and tell you what is planned for the November meeting.

This last year saw upgrading the BBS with a hard disk, improved DOM's, and an improved newsletter. I would like to give credit to those who made it happen.

John Novotny has done a good job of meeting programing with something new every month. I still hear people regretting that they had to miss a meeting. His 'After Last Night' column always stretches my mind. I will miss working with him.

Ernie Costello came forth and provided minutes, letting some know what they missed.

We have been fortunate in having a real professional accountant as our treasurer. Bob Siede makes it look easy. As you know we end our terms with the treasury looking good despite major investments in the BBS.

The team of Joe Danko and Greg Peasley brought us so much good software that at times it was hard to absorb it all. Joe was the master finder and Greg saw that it all got duplicated and into our hands. Although Greg is going to MAST, Joe plans to continue finding more good software for the DOM. The DOM's and your support of them were our major financial support because almost all of the membership dues goes to print and mail the newsletter.

Jim Scheib was able to do both the paper librarian and reinker jobs. He also looks forward to continuing to serve you.

Steve Pauley, the newsletter editor, took an already good looking newsletter and made it better. It's a class act —

compact, easy to read and full of good information. Thanks for your patience, Steve. In his spare time he ran the SPACE/MAST West BBS.

Jim Schulz, MAST pres and Phil Seifert, MAST vp, were most helpful in guiding us though the year. Jim also contributed a number of the newsy columns on the 8-bit.

Bruce Haug, despite demands on his time that forced him to not run for president, really got the BBS in shape. He got the 'bugs' out and now SPACE has one of the most dependable BBS's in the area with plans for further software improvements.

Thanks to all of you and the members who gave us such support and this chance to serve for a year. I wish I had the time to continue longer. I do intend to continue to help where I can.

The October Antic mentioned that pre-release versions of AtariWriter 80 had gone to some user groups for testing this spring with the hope that it would be ready by September. They also did a review on an \$80 image scanner which mounts on the printer in place of the ribbon and requires an 130XE or equivalent.

The October Analog reviewed a product that would allow you to use a second Atari computer as a disk emulator or super-fast disk drive. The same company also offers a way to use that second computer as a printer buffer. They did a review on memory boards for the Atari 800. Look for prices to come down as the memory chip supply improves this fall.

The November Antic had reviews of memory upgrades, a number of hardware modifications and experiments you can do with your computer, a mouse for the Atari, Printer Plus, Lightspeed C, and Print Shop Shareware.

In addition to our regular program, the November meeting will include elections. As mentioned elsewhere in the newsletter, the nominating committee has candidates for president and vice-president. This coming year the treasurer will come from MAST. We will also vote on the

by-law changes published in the September newsletter and discussed at the September meeting. In addition to the elected positions, there will be a need for a secretary, membership coordinator and DOM librarian to help Joe.

As we go to press I have been informed that Mike Deutsch has donated his entire collection of Antic and Analog to SPACE. Antic starts from issue one and Analog is close to that. Both run to the present. Thanks Mike.

See you at the meeting. Doors to open after seven.



## After Last Night (from the VP)

by John Novotny

This one should be named After Last Year, and in fact the theme is more like that. Its theme is "moving on" since this is the end of my term, and I am not seeking another (or any other position). Looking back, I find that many ideas were put forth to make SPACE a more active and meaningful experience for the 8-bit community, but generally expectations were not realized. Personally, I remain a satisfied user but do not think that the 8-bit line will ever recover the following it once enjoyed. As far as applications, 40 column, single density, existing software will have to do. We have seen the new Game Machine, 80-Column adapter, 1200 Baud Modem, Double Density drive and the Newsroom all become available within the last year or so, but the feedback about these new products has been quite thin. I myself have not invested in any of these, and I don't think that I am the exception. Like books, there are many programs that I have not yet had a chance to enjoy, so I am not particularly anxious for something new that often. And although the numbers of older available programs (and places to buy them) keeps diminishing, there are still bargains brought home waiting for time to devote to them. Besides using existing programs, I like time for program-

ming - this is something I hope to resume soon.

Thoughts of moving on reminded me of a ML routine I wrote quite some time ago which I called MOV, and I would like to share it with you. It is a routine for use in BASIC and has a call statement that looks like this:

```
U=USR(ADR(MOV$),from,to,count)
```

Its has the apparant use of moving count words from one memory area to another. Nothing exciting, but good for moving character sets, graphics buffers, etc. It also has the not so apparant use of initializing memory buffers. It does this with the same call statement except that if the from parameter is less than 256, that value is moved to the buffer. This actually does not limit the routine usefulness much except you can't move stuff from page 0, not a place for buffers in a 6502 machine anyhow. Enough said, except that routines like this allow you to achieve speed in BASIC programs comparable to what is expected in compiled programs. If anyone is interested, bring a disk to the next meeting for a free copy of M65 source and OBJ code. (Just a small incentive to come for the election)!



## SPACES October Meeting Minutes

1. The meeting was called to order October 14, 1988 at 7:30 PM by President Larry Vanden Plas.
2. Treasurers Report: Bob Siede. September's income was \$133, expenses \$180, leaving a balance of \$254.72. A large expense item was purchasing a large supply of Memorex disks at a good price.
3. Vice President's Report: John Novotny. John has ordered new BBS software.
4. President's Report: Larry Vanden Plas. Larry asked for a vote on all the bylaw changes. All the recommended bylaws passed. He also relayed comments from "Current Notes" on Atari. For the first time in recent memory they were critical of Atari saying that they were spread too thin

and lacked marketing focus.

5. Offers and Deals. Bob Siede mentioned that Gemini 10x DM printers were offered for \$119 in the "Computer Shopper". He said COMB has Juki 6100s at low prices from time to time. Jim Shieb recommended the Computer Station store for good buys on Atari goods-new and used.

6. New Business. Larry said that the nominating committee was seeking candidates for President, Vice President, Secretary and Disk Librarian..

7. DOM: Glen Kirschner demoed this month's selections.



## SPACE Disk Of the Month News

November 1988 by Joe Danko

SEE BELOW FOR THE AMAZING 2-for-1 OFFER!

SPACE Disk Librarians:

Joe Danko and Greg Peasley

This month's DOM has 2 sides:

SIDE A

DOS SYS 037  
DUP SYS 042  
AUTORUN SYS 007  
MENU 052  
FATAL OBJ 134  
FATAL DOC 014  
TTMAIN BAS 202  
TTBASIC BAS 174  
TTBAMA BAS 015  
PFKEYS DAT 004  
HELP DOC 013  
013 FREE SECTORS

FATAL.OBJ - This is weird little machine language maze game that requires a joystick.

FATAL.DOC - Instructions for FATAL.OBJ.

TTMAIN.BAS

TTBASIC.BAS

TTBAMA.BAS - These three files make up a very nice but sneaky tutorial set for learning to play casino-style BlackJack. The first 2 files are excellent, fast games where one player is pitted against the dealer. The game rules can be changed

to your liking if desired. The sneaky part is the errors programmed in by the author to promote the sale of software that runs correctly.

PFKEYS.DAT - Data file for the SUPERKEY handler that will load when this disk side is booted. Try CONTROL-4 or CONTROL-5 from BASIC.

SIDE B

DOS SYS 037  
LOSTCITYBAS 144  
AUTORUN SYS 002  
DUNE INT 031  
DUNE BAS 145  
DUNE DOC 026  
DUNE VCB 046  
DUNE CHT 035  
DIGDUMP 060  
DIGDUMP DOC 049  
132 FREE SECTORS

LOSTCITY.BAS - A somewhat difficult maze/adventure game in ATARI BASIC that requires a joystick.

DUNE files - If you BOOT SIDE B, the AUTORUN.SYS file will automatically RUN DUNE. It is a text adventure game based on the science fiction novel and film by the same name.

DIGDUMP - An interesting logic and graphics game based on cleaning up toxic waste.

DIGDUMP.DOC - Instructions for DIGDUMP.

The DOM for November will be selling for \$5.

At the November meeting and that night only, all disks in the library other than the DOM's from 1988 will be selling at the unheard-of deal of 2-for 1. That's right, 2 library disks for the price of 1 except for 1988 DOM's. We have the 1989's coming in and we have to move out some of the oldies-but goodies. Come to the meeting, bring your bucks and haul away the software.

All right SPACEHEADS, the time has come to put your bods on the line and become officers or accept other opera-



tional responsibilities or this club may just waste away. The merry SYSOP of the SPACE BBS is even threatening to shut-down if we don't get some leadership. Let's disappoint him and get our act together. Also in that vein, the disk library needs one or two new volunteers to help with sales and copying. It seems that Greg Peasley thinks he is to good for the likes of us since he bought his 1040ST. He is being gracious enough to continue for a time but new blood is needed, also new ideas.



### Candidates for SPACE Pres

Three people left me E-MAIL on the BBS indicating they would run for President or Vice President of SPACE. I have not been able to contact all three by voice phone. I do not think it is fair to print names of some, without printing all names in the Newsletter.

So don't worry we do have people willing to run for office in SPACE. Come to the meeting there will be a election, vote for your choice. At least the USA elections will be over with, if your candidate did not win in the USA election, come to SPACE and help out in our election. Bruce Haug SPACE BBS SYSOP and Nominating Committee.



### The Sparta Dos Cartridge:

A Review by Keith Joins

(Special thanks is given to Bill Aycock, another beta tester, for his work in editing and correcting this review and for adding his comments on some features I had failed to cover.)

By the time you read this the Sparta-Dos X cartridge, a long awaited release from ICD, should be on sale. The people who brought us the MIO, the US doubler, and the disk-based version of SpartaDos have now given us a DOS so fast and powerful that once you use it, you will

never want to replace it with any other DOS currently available. After having used SDX for over two months while beta testing it, I can't understand how I ever survived without it. The cartridge itself is similar in appearance to the R-Time 8. It is easily opened so that you are able to replace the socketed ROM. This is a fairly simple procedure. I have done it twice and if I can do it, anyone can. This will be the method used for any future upgrades—no soldering, thank you! The cartridge allows for piggy-backing another cartridge, such as the R-Time 8, Action!, BXE, MAC-65, etc. I am using it with a MIO and the XE adapter. Tom Harker of ICD has said that they are looking into manufacturing some type of adapter for the XL to avoid the need to stack as many as three cartridges in the XL slot. The cartridge is packed with 64K of code. There is no disk needed with SDX as all of the external command files are resident in the cartridge and load with amazing speed. The DOS is totally relocatable! The need for this will become apparent as you become familiar with SDX. It is this relocatability that has caused the long delay in completing SDX. Anyone who has ever tried to write an application program that is relocatable, let alone a system program, can appreciate the magnitude of this project.

Now let's take a look at some of the new features of SpartaDos X. Something that you have to learn at once is that there is now a new set of identifiers. The first one you learn is CAR:. This is the cartridge itself. We can issue the command DIR CAR: and get a directory of the cartridge as follows:

```
Volume: Cart 4.0 Directory:
MAIN SPARTA SYS 7072 8-24-88 4:01p
MENU COM 6688 8-25-88 12:01p
COMMAND COM 4723 8-25-88 12:03p
INDUS SYS 2498 8-11-88 5:09p
ARC COM 3289 8-24-88 5:26p
X COM 1999 8-24-88 4:01p
ATARIDOS SYS 1815 8-24-88 4:02p
CAR COM 1600 8-24-88 4:01p
```

```
CACHE SYS 1224 8-23-88 9:53a
UNERASE COM 1056 8-24-88 9:55a
TD COM 1016 7-22-88 12:07p
RAMDISK SYS 1048 8-19-88 4:56p
SIO SYS 970 8-16-88 5:34p
FIND COM 831 8-25-88 12:53p
CLOCK SYS 698 7-22-88 12:49p
JIFFY SYS 614 7-25-88 10:48a
DUMP COM 567 7-26-88 11:41a
KEY COM 505 7-19-88 8:42a
CHTD COM 372 7-26-88 11:47a
CHVOL COM 298 7-12-88 9:10a
RPM COM 388 8-25-88 1:50p
RS232 COM 147 7-07-88 3:59p
0 FREE SECTORS
```

Remember that this is the beta version and the directory entries might be different on yours, but not much. A number of the .COM files will look familiar to seasoned SpartaDos users. These are the 'external' commands and they have the same functions in SDX as they did in the disk-based version. The next new group of identifiers used is A: through I: (or 1: through 9:), which represent drives one through nine. DSK is now the identifier for the old D: and is always assumed. Therefore D: is no longer the default drive, but rather is drive four. So, you can reference drive one as 1:, D1:, DSK1:, or A: — your choice. The default drive is now just a colon (:) since a single D preceeding a letter or a number is ignored. Other identifiers are PRN: (the printer), CON: (the "console", or screen editor), and COM: (the RS-232 port). This takes a little getting used to but becomes second nature after a bit. Any MS-DOS users will feel right at home. I learned CON: very quickly when attempting to create my first AUTOEXEC.BAT file (not STARTUP.BAT — more MS-DOS compatibility). I kept on trying to use the command: COPY E: AUTOEXEC.BAT I'll let you figure out what happened!

These new identifiers can be accessed from Basic by preceeding them with a 'D'. LOAD "DF:FILENAME" will load filename from drive six. Of course you

could still use LOAD "D6:FILENAME" also, so there's no problem with compatibility.

If you take a look at the CAR: directory again, you will see some files with the extender ".SYS". These are handlers that you can choose from to configure your system the way you want. SDX will load several of these as a default configuration. SPARTA.SYS and SIO.SYS must always be loaded as they contain the actual SpartaDos disk driver and the SIO routines. The default configuration will also always load ATARIDOS.SYS and INDUS.SYS.

ATARIDOS.SYS will allow you to access AtariDos type disks. INDUS.SYS will re-program any connected Indus or Happy-enhanced drives to enable high speed I/O. I have an Indus GT and this handler works great! RAMDISK.SYS is the SDX ramdisk driver. You may install multiple ramdisks using any unused drive numbers in any size up to the total amount of available banked RAM. You specify the size of the ramdisk by entering the number of 16K banks to be used. For example: RAMDISK.SYS 8 2 This will set up a ramdisk as drive eight using 2 16K banks of RAM. The ramdisk will be formatted automatically unless you had previously installed the ramdisk with the same number and size before performing a coldstart and without losing power to the RAM. This means that you can use the COLD command which re-boots the system and still retain the contents of your ramdisk. By the way, the ramdisk is formatted in double density. CACHE.SYS, when installed, will use one 16K bank of extended RAM to add additional buffers to SPARTA.SYS to make floppies seem to run faster. This handler is not loaded as a default. CLOCK.SYS and JIFFY.SYS are loaded dependent upon your system. If you have a R-Time 8 then CLOCK.SYS will load. Otherwise JIFFY.SYS will load as the default. One or the other must be used to give meaning to any Time/Date commands. Each of the handlers except

INDUS.SYS takes up memory. Therefore you don't want to use any that aren't needed. To do this you can set up a configuration file of your own. When SDX boots it will check drive one for a file called CONFIG.SYS. If the file is present, SDX will use that file for the list of handlers to load. If there is no CONFIG.SYS file, then the defaults will be used. Booting with OPTION held down will override any disk-based CONFIG.SYS file and will use the default configuration. You can also choose what area of RAM SDX will use. The choices are OSRAM (RAM under the OS which is the default on a stock XL/XE), BANKED (expanded memory), or NONE (normal RAM which would usually be used only with a stock 800). SpartaDos X now supports over 1,400 entries in a directory, a real blessing for hard disk users. There are now two valid directory name separators; the usual ">" has been joined by the MD-DOS "\". Also, SDX recognizes the MS-DOS MKDIR, CHDIR, and RMDIR commands, which are equivalent to the old style CREDIR, CWD, and DELDIR. Note that the longest pathname allowed is still 63 characters.

There are several new commands available with SpartaDos X. The first of these is the ATR or Attribute command. This is really an enhancement of the old PROTECT and UNPROTECT commands which set or cleared a protection bit in the filename entry. The protection bit is now manipulated by the ATR command. You would use ATR +P FILE.EXT to protect a file, or ATR -P FILE.EXT to unprotect it. In addition, two new bits are available: the Archive bit and the Hidden bit. The Archive bit is cleared when a file is created or written to, and set when the file is backed up by a backup program, such as ICD's FlashBack!, which supports it. The Hidden bit allows you to hide a file or directory so that it can be loaded as a command only. Commands like DIR, COPY, and TYPE will not 'see' these files unless you specifically include the attribute with those commands. The RUN

command has been eliminated, the thinking being that it was never used except to re-boot the system (with RUN E477). To take the place of this, the COLD command has been added. COLD by itself causes a reboot. There are also two options, C and N, which disable SDX and allow you to boot up a disk-based DOS such as Atari DOS or an older version of SpartaDos. COLD /C will re-boot the system and leave an attached cartridge enabled, and COLD /N will disable all cartridges and reboot the system. Users of SpartaDos will remember that you used the CAR command to return to the built-in Basic on your XE/XL or to the cartridge that you had installed. Since SpartaDos X does not dump you into Basic when it boots up but rather ends up at the DOS prompt, and since it can have another cartridge installed in it, you have two different commands available. The BASIC command will take you to the internal basic on the XE/XL machines, the CAR command will take you to whatever cartridge you have plugged into the SDX cart. In order to return to DOS without losing anything in the editor of whatever language you are using, it is necessary to have a type of MEM.SAV file for each command. These files can be established as part of your CONFIG.SYS file or from the DOS prompt. The form for this is SET CAR=Dn:filename for the cartridge and SET BASIC=Dn:filename for basic. (The SET command is used to set various environment variables, of which CAR and BASIC are two.) While this feature may seem to be a regression, it is necessary due to the relocatable nature of the DOS. CAR and BASIC are automatically set to I:CAR.SAV and I:BASIC.SAV when you boot up. You can change these assignments, but you also have the option of deleting them. If these variables do not exist, then the memory save feature will be disabled and either Basic or the cartridge will be entered cold. When calling DOS from either Basic or the cartridge you will be given a warning if the memory

save cannot be completed, so you can save whatever you are working on to another disk first. I must admit that at first I did not care for this feature. However using a ramdisk for this file makes the delay in saving and reading almost unnoticeable. It also allows you to go from DOS to internal Basic to a cartridge without losing anything in memory! I have found it to be well worth the small delay it causes.

You can enter the cartridge or internal BASIC with the CAR and BASIC commands. Both these commands allow you to specify a filename with any needed parameters. The binary file so named will be run when the cartridge or Basic is entered. This is how, for example, you would run a compiled Action! program that requires the cartridge library. Several other environmental variables are available that you can set with the SET command. One of these is the DOS prompt. You can specify the format of your prompt by using certain "meta" characters. The letters L, N, P, D, T, and R, preceded by a dollar sign, will be replaced by the drive Letter or Number, the current directory Path, Date, Time, or a Return. You can also use an underline, which will be replaced by a space. For example, "SET PROMPT=\$L:" will give you a prompt of A: for drive one. If you are in the GAMES directory on drive one, you could "SET PROMPT=\$T\_D\$N:>\$P>" and your prompt would look something like this: 11:25:42am D1:>GAMES> The normal Dn: prompt is set up with the command "SET PROMPT=D\$N:". PATH can be set to cause other directories to be searched when a command or file is not found in the current directory. Entering PATH with no parameters will show the current search path. Note: the search path is NOT the same as the current working directory! To see what your current directory is, enter CWD (or CHDIR, or CD) with no parameters. This takes the place of the ?DIR command from earlier versions of SpartaDos. The FORMAT command presents a

menu type screen and allows you to format a disk in any density you want. You can use the high speed skew for the new XF-551 drive, the US skew for the Indus or a doubled 1050, or a standard skew. You can format the disk in either Sparta mode or Atari mode. The Atari mode allows you to use enhanced density if you should so desire. This formatting menu shows up whenever a format-disk command is issued — even from within a program! The FIND command will search all connected drives and all directories for the specified filename. Wildcards are of course accepted. You can limit the search to one drive by including a drive number in the filename. The keyboard buffer is not loaded as a default. You must select KEY ON to load the file from the cartridge and activate the buffer. Subsequent KEY commands will toggle the buffer off and on. The LOAD command has the same effect in SDX as in the disk-based version of SpartaDos. This will load a file but not run it. However, you can also use it to load an external command file to keep it resident in memory. The COM files in the cartridge are loaded each time they are called. You could load one or more of them into memory with the LOAD command and they will stay there until you use LOAD with no parameters, which will remove all non-installed programs from memory. The SWAP command will allow you to swap your drive configuration. SWAP 1,8 would swap drive one with drive 8. SWAP with no parameters will display the current drive map. MIO users should take note that the MIO menu swap configuration must be considered when using this command. The X command is used to load and run those programs that require all cartridges be removed. Express, Determ, Textpro, Discom, and the disk-based ARC are examples of programs that must be called using the X command. A couple of nice features are the PEEK and POKE commands. These work pretty much like the Basic commands except you don't need the comma

to separate the address and the value in the POKE command. Also, you can enter the address and value as either decimal or \$hex numbers. These two can come in very handy at times, believe me! For example, my AUTOEXEC.BAT file contains the commands POKE 82 0 and POKE \$2DA 2 to set the left margin and cursor repeat rate as soon as the system is booted. Another command that is nice is CLS for clear screen. This is good for some programs that exit to DOS leaving you with a screen full of the program remnants. There is also an RPM command, which allows you to easily check the speed of your disk drives. (The standard speed for an 810 or 1050 drive is 288 rpm. My Happy drive registers about 900 rpm, and an MIO ramdisk clocks in at around 23000!) The next feature I will cover is one of the most impressive. SpartaDos X contains a licensed ARC program that will also handle Alf-Crunched files. Here is the format and commands used: SpartaDOS X ARC ver 1.1 Usage:

ARCcmd[opt] arcfn [flist] Where "cmd" is one of:

a : add file(s) to archive  
m : move file(s) to archive, then delete from current location  
u : update file(s) in archive, keeping the newest versions (according to the time/date stamp) and adding any source files from flist that aren't in the archive  
f : freshen file(s) in archive, keeping the newest versions but not adding any files that aren't already in the archive  
d : delete file(s) from archive  
x,e : extract file(s) from archive  
p : print file(s) to screen  
l : list file(s) in archive  
v : verbose list of file(s)

Valid "opt" options are:

b : retain backup copy of archive  
s : suppress compression  
w : suppress warning messages  
n : suppress notes and comments  
h : high speed (screen off)  
g : encrypt/decrypt archive entry (fol-

lowed by password - must be the last option, as in ARC AHGtwister TEST.ARC \*.\*") "arcfn" is the archive filename (drive, path, and ext are optional). "flist" is the list of files to extract, add, list, etc. in the archive. Wildcards are allowed in each filename. "\*,\*" is assumed if no filename is given. This is a fully featured ARC as you can see, and works the same way as the ARC utilities for IBM and ARC.TTP for the ST. It is also extremely fast!

The first time I used it to unarchive a file I thought it must not have worked properly since it finished so quickly. The program will automatically determine whether a file is in ARC or Alf-Crunched format when extracting files, and when compressing will use the most efficient ARC format it can. Anyone who is a frequent downloader of programs that have been compressed will really like having this program always just a command away.

Most other commands remain the same as they were in the disk-based version of SpartaDos. Some have additional features such as DIR and TYPE. They can each accept some optional parameters. Remember the discussion of the ATR command? The Attributes can be included with these commands. DIR +S will show only subdirectories. DIR +H will show hidden files. You can also use a /P or /C. with DIR. DIR /P will pause the display and wait for a keypress after giving you a full screen of filenames. DIR /C will give you a count of the number of entries in that directory. DIR /PC will do both. TYPE can also use the Attributes and the /P. Also, TYPE is no longer limited to text files with 64-character lines. You can now TYPE any file to the screen. PRINT has been dropped and the entire I/O re-direction scheme has been changed. Batch files are only read by the command processor and cannot input information into a Basic program since they are no longer system wide. You can divert output of a single command by using >> such as DIR >>PRN:. This would redirect the directory display of drive one

from the screen to the printer. DIR >>A:FILENAME would direct the display to the file on drive one. Similarly, you can use <<A:FILENAME to specify input from a file instead of the keyboard.

As I already mentioned, SpartaDos X looks for a file called AUTOEXEC.BAT at boot rather than STARTUP.BAT. This batch file would include any system set up commands you need (like the POKes mentioned above). You can execute a batch file from the command processor with the -filename entry. You can also pass parameters to the batch file. As an example let's suppose that you have set up your MIO ramdisk as drive one but that you frequently want to change the file that you are using as your CONFIG.SYS. You have a floppy in drive two that has a library of CONFIG.SYS files named FILE1, FILE2, etc. Here is our batch file, named CHANGE.BAT: COPY %1 %2 COLD Now we would execute this batch file as follows: -CHANGE B:FILE1 A:CONFIG.SYS This would copy FILE1 from your library of CONFIG.SYS files in drive two to drive one and re-boot the system using the new CONFIG.SYS file. This is not the best example in the world but it does give you an idea of what can be done. You may pass a total of nine parameters to the batch file. While speaking of batch files and CONFIG.SYS files, a nice feature in creating and editing these files is that COPY CON: does not clear the screen as COPY E: does. You can TYPE the file out, issue a COPY CON: CONFIG.SYS, move the cursor to the display of the file and edit what you want while hitting RETURN after each line, and then press CONTROL-3 to close the file. This can be a real time saver when setting up various CONFIG.SYS files.

And now a note to TURBO BASIC users. You can now use TB with SpartaDos! However you will need an expanded memory system since you must load the handlers into BANKED memory. That will leave the RAM under the OS available to TB. While I haven't tried it, it might be possible to load the handlers into normal

RAM and run TB on a stock XL but it would drastically reduce the memory available for any programs to use.

Well, this has been a brief overview of the SpartaDos X cartridge. In my opinion it is well worth the long wait. While there still could be bugs lurking around in SDX somewhere, if they are there they are extremely subtle. The only problem I can see will be the occasional program that is not compatible with SDX. In the course of beta testing we've found a few such programs, but ICD has quickly remedied this. If you discover a program that doesn't work, report it to ICD and use the disk-based version with it until the next upgrade. Whatever you do, don't miss this one!

ICD, Inc.  
1220 Rock St.  
Rockford, IL 61101-1437  
info & orders: (815) 968-2228  
ICD bbs system: (815) 968-2229.



## RIBBON RE-INKING

Jim Scheib - 721-4185

The club can re-ink most printer ribbons (black) for a small fee. There is no longer a reason to use a faded ribbon! Ribbons that can be re-inked are: \$1.00/ribbon - Spool to spool (all types) - Epson MX-80 and compatibles - Epson LX-80 and compatibles - C. Itoh Prowriter and compatibles (NEC 8023A/C) - Citizen 120 D - Panasonic - small ones that turn counter-clockwise: \$2.00/ribbon - Epson MX-100 and compatibles. Other ribbons can be attempted, too. But if you prefer, you can buy an adapter (\$8.50 + \$3.50 shipping and handling) for the club and receive half that amount in credit towards re-inkings. See Jim Scheib at the SPACE meeting, or Jim Schulz at the MAST meeting. Please pay in advance & be sure to have your ribbon(s) in a plastic bag



M • A • S • T



## News from the Pres

By Jim Schulz

It's November and the election time of the year is here.... But don't stay away and don't be afraid!!!! At MAST, there is no reason to stay away during election season. We have candidates for all positions and all are eager to get started with the new year!!! So let's get moving....

First, a comment.... Yesterday, I read a comment by a member on one of SPACE/MAST BBSs that said that MAST needed saving. I read it and said, saving from what???? So let's talk about the state of MAST as we roll into another new year. First off, finance wise, MAST couldn't be better. This year, for the first year, we made it through the summer without going into debt or losing money. We planned accordingly and you responded. I don't have the actual numbers in front of me, but MAST currently has about \$650.00 to \$700.00 in the bank. Based on my informants, this is the most of any of the four user groups in town. So finance-wise, I think we are better than we were last year at this time. Second, membership, MAST is growing. I am happy to say that last month MAST picked up four new members and three renewals. We are getting new members and you are renewing. Both are signs of an active, alive club and not a club dying on the vine. Here, a word of thanks is in order to Wizard's Works for their help in passing out info about MAST and the newsletter. Third, new blood. Even though, crochety old Jim is still president and probably will be elected again this year. We will have a new VP, a new treasurer, and a number of new faces have appeared to lend their help. Volunteers run a club and the enthusiasm of the members keeps the club moving. We always need volunteers and this group, for sure, has a number of people willing to volunteer. When was the

last time that you heard about two people seriously interested in running for VP or even treasurer of a user group??? Usually it involves a lot of arm twisting to get anyone's help. Finally, the future. MAST is really an untapped source of information for the both our area and the US. This year's agenda will include a number of items to get our name out locally and nationally. Very few people know that we exist and what we have to offer. This is one thing that's needs to change to make us grow even further. Is MAST dead or even going that way??? I would have to say no way!!! MAST, right now looks better than ever and the best is yet to come!!!! Enough said....

Second, last month.... Last month, we had a goodly number of demos and all sorts of good stuff as well. I would like to thank Dave Meile for showing off the Xchange cable box and Steve Pauley for showing off his long awaited maze program. We had a good crowd for teacher's convention weekend and we even got some new members in the deal as well. As always, we had a lot of news, rumors, and disks and even a doc disk as well.

Third, this month.... This month, I am calling dungeon month. This month, the DOMs will include three new dungeon hunting games which include Nethack and Moria. Also, we will be demoing the D&D game from SSI to stay in our theme of the month and maybe we can find an adventuring soul to even show off a little of the now classic Dungeon Master as well. Other demos currently scheduled include Multidesk (the desk accessory loader), Revolver (new switcher program for switching between two programs), Arch-noid II (finally, sold out twice now from WW and is back in stock again), Roadwar from Electronic Arts, and Space Harrier from Sega. We might also have a demo of the new Mac emulator, Spectre 128, if I can get ahold of a local member. Lots of good stuff and we might even see the arrival of Pagestream, the new name for Publishing Partner Pro or ST Talk Professional as well. Lots of stuff to demo and more to

come as well. Oh, yea, we also have elections this month as well. All the positions have candidates for office so no need to stay for fear of getting volunteered. The list of candidates is printed elsewhere in this issue by one of the members of the nominating committee. We have a good crew of volunteers again this year so another good year is ahead of us. Finally, we will have a goodly number of news, rumors and disks of the month as well. Yes, another good month ahead.

Also, don't forget the MAST+ meeting the following Monday night. This month, we will be showing off more on MINIX, the new UNIX-like operating system for the ST, and Sozobon C, the new public domain C that puts the commercial C packages to shame. In addition, we will hear the latest from Chuck, Dale, Todd, John, and Dave. You never know what these guys have planned so come and find out yourself. For good programming talk and more as well as pizza after the meeting, come to the next MAST+ meeting. To find out the latest on the MAST+ meeting, check out the MAST BBS.

So what's in store for the months ahead.... December is the biannual MidiMaze blowout to see if you can really beat Phil or Todd or maybe even Kent. And maybe even Steve can try his hand at winning as well. January, I am currently thinking about another swap meet. This might be a good time to get rid of unwanted Christmas presents as well as picking up a new present for yourself. And don't forget the month of February when MAST again celebrates its birthday in grand style for its third year anniversary. More is always in the works and if you have any ideas, please see me with your suggestions. Stay tuned to MAST for the latest.

Disk sales.... Blank disks are still available at the MAST meeting and directly from me otherwise. My supply is low and I am closing the last of the disks out to get rid of old stock. So until they are gone, the price this month is \$1.05. These disks are still double-sided and the same

quality as before. So eat'em up and let's get rid of this old stock!!!! Also, I still have the pin-feed 3.5" over-the-top disk labels for \$2.00 per 100. Also, I have tons of blank disk labels and some empty disk boxes as well for the taking. If you want them, please take them!!! These are free!!! Can't get a better deal!!!

Newsletter.... This month, we have a good-size newsletter, but we can always use contributions. This month, we have another article from Steve Murphy. Thanks Steve for the contribution. Phil's stuff is missing this month as he was called out to New York to do some training and make more money as well. We are still in need of a newsletter editor. I keep getting feelers, but no takers. This is Steve Pauley's last month as newsletter editor. If we don't get a volunteer this month, you might not be reading this next month. I am hopeful that one of members who is near the edge will come through. Without a newsletter, we have no way of communicating with you our members. The newsletter is the best way to communicate and keep the Atari news coming. If you are truly interested and willing to volunteer, please see me or Phil. We need to keep the information rolling....

BBS.... Yes, the BBS is still up and running. The callers keep coming and the phone lines are still busy. I call in at least once every day so if you need to get ahold of me, this is one of the best ways. Steve is still cleaning things up. New stuff is on the horizon so stay tuned for more info. Or better yet call for yourself at 560-9254 and see what you are missing.

Thank you.... Yes, we have a number of members who deserve a big pat on the back. First of all to our nominating committee, Dave and Kent. Both wanted VP, but Kent opted out for user group coordinator. Kent wanted to sit in the big chairs up front so maybe we can find room for him anyway. Dave and Kent did a good job at getting the positions filled and a slate of candidate to be presented. Second, Steve Pauley. Steve, singlehandedly, brought the SPACE/



MAST newsletter in one year to magazine quality perfection. I know none will be able to walk in Steve's shoes with this job (Don't you think that's a little to much? - Ed.). All members of SPACE and MAST should give Steve a big hand for his help this past year. Finally, and last, but not least, we have Phil. Need we say more??? Phil came through again as VP and gave his all this past year. Thanks Phil for all your help from me and all of the MAST members.

Miscellaneous stuff.... First, we have a thank you from Wizard's Works for stopping by over the last month. Member response has been good this month and repair shop is full of hardware needing fixing. Support of Wizard's Works is important to the club. In addition to giving a 25% discount with a your MAST membership card, Wizard's Works advertises here which helps pay for the newsletter and directs new ST owners our way to join the club. If you haven't stopped by lately, stop by and bring your card for a good deal. ....Second, also stop by the Electronic Boutique. Some of the members have mentioned that this store is no longer restocking ST software. We bought them out when they opened up. What do we need to do to tell them that we want more ST software???? Stop by and tell them that you want to see ST software on the shelf. If we don't say something now, it will be too late later.....

...Third, another member and newsletter editor and BBS sysop, Steve Pauley has been having good luck lately with his Amazing Construction Set program. A number of people have registered the program since the last MAST meeting and it is to hit the commercial BBS this week. Good luck, Steve.

...Fourth, more congrats are in order for VP, Phil. Phil has recently been promoted to assistant store manager of the Roseville store of Egghead. Stop by and say hi if you are in the neighborhood. Keep up the good work.

....Finally, I will have the club copies of most of the latest ST magazines up front.

While we are waiting for our subscriptions to arrive, I will start picking up store copies for the club. Look for these up front starting this month.

Well, that's it for November. The best is yet to come!!! Oh, what?? This thing again??? You have what??? Ok??? So what's inside of our talking envelope this month... First off, MINIX ST. If Atari couldn't bring it out, someone else did. This multitasking operating system even works with single- and double-sided floppies as well. MINIX is a UNIX-look alike from Europe. Now if I could only get a copy of it myself. If you like or use UNIX, this is a must have and for under \$80.00 as well. This price can't be beat. Also, the Amazing Construction Set program. This program will generate a maze out of just about anything that you can draw. Steve has been working on this off and on for about two years and the effort shows. Not bad for a non-programmer. This program deserves a good look. Yes??? Next month?? Ok??? As the envelope closes, he promises more goodies next month. So as the envelope closes, I hope to see you all at the November MAST meeting and MAST+ meeting as well as on the MAST BBS. Happy computing!!!!



### Election of officers for MAST and SPACE

Elections will be held this month. All members are encouraged to attend this meeting.

There will be three positions to fill within MAST - President, Vice President, and a Treasurer co-shared with SPACE. At the October meeting, three candidates were put forward for these positions.

For President - Jim Shultz. You all know Jim. He's been writing articles in this newsletter for a long time. He's also the DOM Librarian for MAST, providing us with many interesting Public Domain and Shareware programs each month.

For Vice-President - Dave Meile. Dave has been a member of MAST for about 2 years now. He's written articles

and reviews in this newsletters. He also has created two MAST NewsDisks during the past year.

For Treasurer - Allan Frink. Allan is currently the MAST membership coordinator. This year, MAST is putting forward their own candidate to act as treasurer for both SPACE and MAST. Allan contributes quite a lot to the MAST Programmers group, and has been handling the sale of DOMs at MAST meetings.

So, there you have it. Jim Shultz, Dave Meile and Allan Frink volunteered to have their names put on the ballot. Other candidates might be announced at the MAST meeting (particularly if SPACE puts forward a candidate for Treasurer as well). Be sure to attend — your vote does count, even if it is only a vote of confidence!



### MAST Disks of the Month

By Jim Schulz

Well, it's that time again for more disks to add to your library. But first, let's look at last month's selection of disks:

- #1 - Doc Disk (complete listings of all files thru September)
- #78 - Uniterm 2.0d 010 (Best public domain terminal program)
- #101 - ST Xformer 2.1 (Latest version of the 8 bit emulator)
- #124 - Mark Johnson C (Latest version of the public domain C compiler)
- #151 - AIM V2.51 (Atari image manager for manipulating pictures)
- #235 - Sheet V2.0 (Latest version of public domain spreadsheet program)
- #290 - Sheet Support Disk (Latest doc files and templates)
- #306 - October DOM #1 (Utilities)
- #307 - October DOM #2 (Applications)
- #308 - October DOM #3 (Games)
- #309 - October DOM #4 (Communications, GFA, and Music)
- #310 - ROCM Game (Low res game with sound and super graphics)
- #311 - Vanterm V3.71 (A GEM-based

terminal program with tons of options)

#312 - Catnap Demo (A rather large demo of a dreaming cat)

#313 - ANALOG Disk #18 (Files from ST-Log October issue)

#314 - ANALOG Disk #19 (Source code from October Sorcerer game)

#315 - AIM Image Disk (More pictures to go with AIM image program)

#316 thru

#322 - GNU C Source Code (7 double-sided disks of GNU C code)

So that's it from last month. Another rather interesting selection of disks. First the news and then on to the selection for this month.....

Disk Listing.... Last month, I tried an experiment of publishing a list of disk names with a short description for distribution at the meeting. One copy for whoever wanted it. I made up 25 copies and I left for home with 15 copies. I know that there were more than 10 people at the last meeting buying disks. Do you want something like this??? Everything takes time to prepare. If this was helpful, please speak up!!! I do listen to suggestions. I will try this one more month and then toss the idea in the bit bucket if I get no response from the troops.

Doc disk... Yes, last month, we finally had a doc disk. I used Todd's new DISKSCAN program to scan all of the disks and it worked fairly well. Todd got a list of suggestions following the meeting on enhancements to make it easier. One option, not taken advantage of yet, is the disk description field. This is coming, but it will take time. Also, do you want more detail on each of the disks??? If you do, what about an ARCDed disk of READ.ME files from the DOMS with the Tempest

**Did you know you can buy  
blank 5 1/4" and  
blank 3 1/2" Disk at both  
SPACE & MAST Meetings?**

demo program as a viewer??? Would this help you wade through the disks any better?? This can be done also. Please let me know. I always have an open ear for suggestions.

Special continues.... Even though noone took advantage of it, the #1 to #200 sale will continue through December 31st. Here is the deal. All disks #1 through #200 will now be \$4.00 each. If you buy 25 or more at one time, they are \$3.00 each. Sound simple. This also includes updated disks like Uniterm, ST Xformer, or even ST Writer for only \$4.00 each. The new doc disk is out so you should now be able to find those missing disks for your collection. So stock up for Christmas now or fill the holes in your collection.

Prices.... All MAST DOMs are \$6.00 each. In addition, the MAST news disk, the ST News disk and the doc disk are \$2.00. Updates on old disks are \$2.00 with the return of the original disk. Also, through the end of the year, disks #1 through #200 are only \$4.00 each and when you purchase 25 or more at one time, they are only \$3.00 each. So stock up this month!!!!

ST News.... Yes, hopefully this month. Last month, I got overrun by disk copying, making roughly 150 to 175 disks. We are getting more ST News disks on order so we should be up to date soon. Expect them this month or next month for sure. Thanks for your patience.

So that's the news for November and now on to the public domain software...

ANALOG - Yes, we are still up to date. Last month, we had the Monkey's and Balloons program and a Sorcery game like the classic Hex with source. This month, we have their new CAD-3D look-alike program. Most of the new ST-Log/ANALOG disks have at least one commercial quality program per issue. These disks are getting better each month. After the meeting, we demoed last month's disk and I sold a couple more copies. Please note: You do not need to own a copy of ST-Log to run these programs. It would be

nice to support ST-Log by buying the magazine, but the programs can be run without. If you haven't been buying the ANALOG disks lately, you are missing out on some good programs. I will demo some of the programs from this month's disks and last month's at the next meeting. Thanks for purchasing the ANALOG disks!!!!

Updates - This month, we have three update disks. First, we have a simple patch to the Sheet program. I have not run the patch yet to see what it fixes. I have assumed that the patch was installed when I made the DOMs last month. If we need it, the updated disks will be available for a free swap if you own V2.00, otherwise it's \$2.00 plus your original disk. Second, we have another update to the ST Xformer. I haven't had a chance to look at this update either. But since this update is minor, this will also be a free update swap if you own V2.1. The big thing this month with ST Xformer is the release of all of the source code to the last version two versions of the emulator. He is removing the Apple and Commodore emulation, but now the source code is available. The 130XE emulation is coming soon. The source code disks will be available at the meeting. Finally, we have the latest version of MAST's own Dale Schumacher DLibs. I also don't know what has been added or modified, but this update is to coincide with the release of Sozobon C. This update is \$2.00 with the original disk. More on this update soon.

Sozobon C - If you have been attending the MAST+ meetings, you have heard about this new public domain C package already. Well, it is now available!!! This public domain C package includes everything you need to compile and run your own C programs. It also includes complete source code as well. Please note: This package compares favorably with Mark Williams C and Laser C and can produce better optimized code as well. From what I have seen at the MAST+ meetings, this program is beyond the normal public domain. Check it out at the

meeting and hear more at this month's MAST+ meeting. Both the C package and source will be available.

Dungeon Month Specials - As I have declared this Dungeon month, we have a couple of special dungeon programs. First, we have moria which has been converted over from the VAX mainframe version. This is a text character graphic dungeon game with a number of levels and all sorts of extras to boot. Source code is also available. Second, we have NETHack. This is a new and enhanced version of Hack with more features and fewer bugs. This version was put together from suggestions from dedicated Hack players on USENET. Third, we have a program Dungen. I have not tried this game, but it is a full disk game and recommended by a number of people so I'll check it out. So get cloaks and daggers ready and get set for trek into the depths.

Christmas music disks... Again this year, we will be offering music for the season. I believe that we have three disks of Christmas music from the past two years, but one new one for this year. So buy early and start getting in the Christmas season spirit!!!

Other goodies.... More is coming in daily, but here are a couple more programs to whet your whistle.... A German label making program with a ton of options, a Casino game, an ST version of the Robotech board game, and a demo of the new Revolver switcher program. I also have some great new demo files with actually sing with the animation. How about the singing raisins??? But this requires the AVD animation viewer from the latest issue of START to view. Any interest????

Well, that's a sample of what we have for this month with more coming every day. Check out the MAST BBS the week of the meeting of the latest update on this month's DOMs. As always, I do my best to put out as much good stuff as possible given the time that I have available. I will again be demoing the software at the meeting so check it out before you buy.

If you can't make the meeting and would still like to get ahold of the DOM or would like to get ahold of the DOC disk, my new address is

5900 65th Avenue North #204  
Brooklyn Park, MN 55429

That's it for November. More good stuff coming in daily. Requests are always welcome. I hope to see you all at this month's MAST meetings and on the MAST BBS.



**12:00am**  
**with S.T. Murphy.**

It's the middle of the night and you're working with an application, doing whatever it is you're doing, and it happens; booomm! Your first reaction is "WHAT!?!?" Then you throw your hands up in disgust. "How could they release a program with bugs in it?" Well, it happens. A bug here, a bug there. But a bug everywhere?

Why do I find an increasing amount of software products released with bugs in them? My first encounter with bugs was with an Atari 800 program. It worked fine for certain functions but locked the computer on others. Sadly to say, I wasted 29 dollars on a BBS program (Bulletin Board Construction Set from The Catalog) that advertised many good features, yet it couldn't deliver them. Now, with my Atari 1040ST, it's still happening, but the cost is even greater. Not only is the software more expensive, the outcome of a bug could amount to even greater costs. I'm sure a bug in a desktop publishing program used for commercial purposes could cost a business hundreds of dollars if this bug prevented the business from continuing while the owners searched for a new program.

Why should I invest my hard earned money on bug fixes? Not many people would. Sending money for an update on an existing product is certainly fair, but sending money for bug fixes is ridiculous! When a product is advertised with certain features and the software doesn't deliver, it should be the responsibility of the software producer/distributor to provide you with a working product, with no charges to you. After all, you paid for what was

advertised. No where on the backs of boxes, have I seen on the list of features, "Also contains bugs", or "Beta-test version — expect bugs!"

Recently, I received a program that had so many bugs, I decided to write the company to complain. Along with the letter was a list of the bugs I had found; the list was three pages long! The next month, I noticed a small note in a magazine about the program. It explained that the program was a beta-test version. No where in the box or on the disk, or program for that matter, was there a hint that the program I had was a beta-test version. But according to the blurb in the magazine, the normal release version wasn't due for a few more months. All that complaining had done me no good. As it turns out, I was captured as a beta-tester even though I didn't know it. By the way, I did receive a letter from the author apologizing for the bugs. He still didn't mention that the program was a beta-test version though. Oh well, what more can I hope for, free updates?? HA!

To wrap up this continuing saga, games usually don't have bugs in them

since a bug in a game is more notable. You can't solve the game if a bug prevents it. However, bugs do exist in a few. A perfect example is of a game I just received for review purposes. The game is supposed to be played with either the joystick or mouse. As it turns out, the joystick doesn't work unless you press 'J', for joystick ('M' for mouse if you want to switch back). This was not mentioned in the manual or on the screen. After being killed off though, the high score screen is supposed to be displayed, and is when the mouse is used, but it locks up when the joystick is being used. The mouse does work though, and it's easier to use too.

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**December Newsletter Deadline for Articles and Ads - November 26th**

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#### **Help Wanted**

At this time we still don't have a volunteer for sure. If this is something that you think you would like to try, contact one of the club officers listed in the front.

# **WIZARD'S WORK**

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**ST. PAUL ATARI COMPUTER ENTHUSIASTS  
& MINNESOTA ATARI ST**

SPACE and MAST are independent user groups of owners of ATARI Home Computers. It has been organized by local owners of ATARI computers for the purpose of mutual self assistance and sharing of information. It is open to all interested computer enthusiasts.

Benefits of memberships in the groups include monthly newsletter mailed to your home, BBS access, software demonstrations, group purchases, public domain disk(s) of the month software at low prices, reference book library, educational software library (8-bit only) with over 20 titles, personal contacts/learning, greater information and awareness on the world of ATARI, software at discounted prices from dealers, question and answer session, etc. Come to a meeting to find out more.

**SPACE-8Bit Group** The SPACE meetings are devoted primarily to the 8-bit ATARI computers such as the 400, 800, 600XL, 800XL, 65XE and 130XE. There is other ATARI related news and some 16-bit news at the SPACE meetings, as well. The SPACE group meets on the second Friday of each month at the Falcon Heights Community Center, 2077 West Larpenteur Avenue, at 7:30pm. Doors open at about 7:10pm.

**MAST - ST Group** The MAST meetings are devoted primarily towards the ATARI 520ST, 1040ST & MEGA computers. There will be ATARI related news items covered, but not 8-bit news. The MAST group meets on the third Friday of each month at the Falcon Heights Community Center, 2077 West Larpenteur Avenue, at 7:30pm. Doors open at about 7:10pm.

**MAST+ - Programming Language User Sig** MAST also has a programmer's group meeting. This group has a more technical discussion regarding programming the ST computers in a variety of languages. The group meets on the Monday following the MAST meeting at the First Minnesota bank on Lexington Avenue near Larpenteur Avenue. Meeting time is 7:30, with doors opening at about 7:20pm. The entrance is in the back of the building and leads to a stairway to the second floor.

For more information, or to confirm a meeting time and location, call Larry Vanden Plas (SPACE) 636-2415 or Jim Schulz (MAST) 533-4193

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**SPACE/MAST Membership Application**

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Equipment/System Used \_\_\_\_\_

Areas of Interest \_\_\_\_\_

Check one or both: SPACE \_\_\_\_\_ MAST \_\_\_\_\_

Renewal? \_\_\_\_\_ Address Change? \_\_\_\_\_ Membership Card Given? \_\_\_\_\_

Dues: \$15.00 per year - Please enclose with Application.

Mail to: SPACE/MAST, P.O. BOX 12016, New Brighton, MN 55112



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New Brighton, MN 55112